

REMARKS

Interview

Applicants thank the Examiner for the courtesy of the interview held with Applicants attorney, Linda Palomar, on August 9, 2010. During the interview the following was discussed. It was proposed that the limitations of claim 3 be added into independent claim 1 and the limitations of claim 22 into independent claim 20. The Examiner stated that controlling the ratio is not patentable as it would be obvious to one of ordinary skill in the art in view of the cited prior art as this only controls the amount the valve is opened. The Examiner contended that the prior art teaches keeping the softness at a constant level, which teaches adjusting the valve when the water gets too hard, and adjusting the valve when the water gets too soft, and therefore, blending is known. The Examiner stated that, if necessary, he would find a multi-way valve that can be opened to different degrees to allow blending and make a new rejection in view of the prior art of record. The language of "configured to" was discussed with regard to the controller. The Examiner initially advised that this may be moving the claims in a patentable direction as the claims are directed to the controller versus the valve, however, the Examiner said that he still was not sure how it could be claimed as the functionality is obvious from the prior art.

Claim Rejections - 35 U.S.C. §103

Claims 1, 3-5, 7-10, 19, 20 and 22-25 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over EP 1741991 to Aisa et al. in view of United States Publication No. US 2002/0017495 to Iizuka et al. Reconsideration and withdrawal of the rejection is requested.

Independent claims 1 and 20 have been amended to incorporate the limitations previously provided in dependent claims 3 and 22. Independent claim 1 now requires "said controller controlling said flow directing arrangement so as to determine the ratio of the water components of said blend to achieve a desired softness of water in said wash chamber" and independent claim 20 now requires "said controller controlling said flow directing arrangement so as to determine the ratio of the water components of said blend to achieve a desired softness of water."

Water Softener Operation

The softness of water introduced into the wash chamber is regulated to improve brine efficiency. The water softener can control the wash water softness depending on the hardness of the supply water and softness of water required by the appliance. The softness of water required by the appliance may vary depending on the selected wash cycle (fast, normal, heavy, etc.) or the phase in the selected wash cycle (rinse, pre-wash, wash etc.)

The claimed water softener utilizes two distinct mechanisms to control water softness. The water softener can manipulate:

1. The resin regeneration process (by regulating the amount of brine introduced into the resin compartment), and
2. The ratio of raw and softened water introduced into the wash chamber.

Resin Regeneration

During operation of the water softener, the resins are depleted by exchanging softening ions with the "raw" water passing through the resin compartment. The resins are regenerated by

flushing the resin compartment with a brine solution when the resins are considered sufficiently depleted. The amount of brine introduced into the resin compartment is determined from the supply water hardness and the requirements of the washing appliance. The resins are commonly regenerated to meet the most stringent requirements of the washing appliance.

Regenerating the resins to meet the most demanding requirements means that there will always be a supply of sufficiently softened water available.

Supply Water Blend

Not all phases of the wash cycle require the same degree of water softness. The claimed water softener is able to actively blend raw and softened water to achieve a desired water softness. Blending the supply water to meet specific wash requirements conserves the resins and increases brine efficiency.

The claimed water softener is able to adjust to different supply water conditions (by regulating the regeneration process) and wash cycle requirements (by blending supply and softened water appropriately). The cited prior art does not provide this dual functionality.

Prior Art

Neither Aisa nor Iizuka discloses controlled blending of raw and softened water to achieve a desired water softness in the wash chamber as required by the claims of this application. The Examiner asserts that a drain hole (8) disclosed in Aisa is a functional equivalent of an actively controlled flow diverting arrangement. Aisa, however, does not disclose blending raw and softened water to achieve a desired water softness in the wash

chamber as the quantity of water draining to the tub (through the drain hole) is not controlled. The disclosed drain hole (8) in Aisa is used exclusively to drain reservoir overflow, leakage water and condensation.

Aisa discloses a water softener that is able to automatically adapt to changes in the supply water hardness. The water softener detects the supply water hardness and controls the regeneration process so that the water hardness remains at an acceptable level. The softened water is retained at a fixed level for the entire wash cycle.

Iizuka discloses a water softener capable of providing a continuous supply of softened water. The water softener incorporates two water softening compartments that are alternatively regenerated so that at least one compartment is always capable of providing sufficiently softened water.

Therefore, Applicants submit that Aisa in view of Iizuka does not render obvious independent claims 1 and 20. Reconsideration and allowance is requested.

Claims 4, 5, 7-10 and 19 are dependent upon claim 1 which Applicants submit is in condition for allowance. Therefore, Applicants submit that claims 4, 5, 7-10 and 19 are allowable. Reconsideration and allowance is requested.

Claims 23-25 are dependent upon claim 20 which Applicants submit is in condition for allowance. Therefore, Applicants submit that claims 23-25 are allowable. Reconsideration and allowance is requested.

Claim 6 was rejected under 35 U.S.C. §103 as allegedly being unpatentable over Aisa in view of Iizuka and further in view of EP 0545127 to Milocco. Claim 18 was rejected under 35 U.S.C. §103 as allegedly being unpatentable over Aisa in view of WO 01/26532 to Maunsell.

Claims 6 and 18 are dependent upon claim 1 which Applicants submit is in condition for allowance. Therefore, Applicants submit that claims 6 and 18 are allowable. Reconsideration and allowance is requested.

Examiner's Concerns

The Examiner has expressed concern that the direction of the claims seems to be diverging from its original intent. The Examiner asserts that the claims originally related to a water softener and now appear to be relating to a diverting valve.

Independent claims 1 and 20 recite a mechanism for regulating the water softness delivered to the wash chamber as originally disclosed in the specification and claimed. Claims 1 and 20 incorporate a flow directing arrangement that assists in the overall water softening process as explained above. The flow directing arrangement recited in claims 1 and 20 was presented in dependent claims 2, 3 and 21, 22 of the original application. Therefore, the scope of the claims has been consistent from the beginning of this application.

New Claims 43-45

Claims 43- 45 are newly-presented. Claim 43 is independent and requires the water softener controller to "intelligently" blend raw and softened water to achieve a desired water softness. Applicant submits that the prior art does not disclose this. Entry, consideration and allowance is requested.

Applicant has concurrently submitted a Request for Continued Examination with this Amendment.

Should the Examiner have any questions regarding this Amendment, the Examiner is invited to contact one of the undersigned attorneys at (312) 985-5900.

Respectfully submitted,

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